UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,326	06/01/2001	Kenneth Lerman	SYCS-038/P89	2897

959 7590 04/22/2005	EXAMINER	
LAHIVE & COCKFIELD, LLP.	TANG, KENNETH	
28 STATE STREET		
BOSTON, MA 02109	ART UNIT	PAPER NUMBER
	2195	

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)	
Office Action Summary	09/872,326	LERMAN, KENNETH	
	Examiner	Art Unit	
	Kenneth Tang	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _22 December 2004_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-32_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-32_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _01 June 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1.   This action is in response to the Amendment filed on 11/23/04. Applicant's arguments

have been fully considered but are now moot in view of the new grounds of rejections.

2.   Claims 1-32 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.   Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

4.   The following is indefinite:

i.   In claims 1, 14, 23, and 29, "second plurality of data structures" is

indefinite because it is unclear why there is a second plurality of data structures if

a first plurality of data structures were not introduced.

ii.   In claims 1, 14, 23, and 29, "third data structure" is indefinite because it is

unclear how come a second data structure is missing. There is a first data

structure and then a third data structure. There's no second data structure but a

second plurality of data structures. There's not first plurality of data structures

introduced. The claim language is very unclear.

a.   The following lacks antecedent basis:

iii.   Claim 1, "the expected number of events", line 5.

      iv.   Claim 14, "the expected number of events", line 4.

      v.   Claim 23, "the expected number of events", lines 3-4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   **Claims 1-9, 12-20, and 23-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong, Jr. et al. (hereinafter Armstrong) (US 5,758,137) in view of Kernighan et al. (hereinafter Kernighan) ("The C Programming Language").**

6.   As to claim 1, Armstrong teaches in an electronic device, a method for maintaining a timed-event list of operations to be performed by said electronic device *(col. 2, lines 1-19)*, said method, comprising the steps of:

providing a first data structure (the column, for example) *(Fig. 3)* for said timed-event list, said first data structure being of a size larger than the expected number of events occurring in said electronic device at any one time (increasing scalability) *(see Abstract, col. 2, lines 1-19)*,

providing a second plurality of data structures referenced by said first data structure (the rows of the multi-dimensional array) *(Fig. 3, see Abstract, col. 2, lines 1-19)*.

a third data structure (timer request having a timed event) that can be inserted as a two-dimensional array, said third data structure encapsulating data about a timed event performed by said electronic device *(col. 3, lines 57-67, col. 4, lines 7-12, 18-23, 39-47)*.

7.   Armstrong teaches having a timer request array, multi-dimensional array that stores a request in a particular column based on the time in the request. Armstrong fails to explicitly teach the second plurality of data structures being referenced by different locations in said first data structure. However, Kernighan teaches a multidimensional array is an array wherein its elements are referenced by different locations with arrays or with an array of pointers *(page 112, lines 3-4, page 113, section 5.9)*. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of the second plurality of data structures being referenced by different locations in said first data structure to the existing system of Armstrong because referencing allows the multidimensional array to utilize/work with other data structures.

8.   As to claim 2, Armstrong teaches serially traversing (migrating) said first data structure at periodic timed intervals *(col. 7, lines 40-53)*.

9.   As to claim 3, Armstrong teaches serially traversing said one of the second data structures referenced by said first data structure in the time period between said periodic timed intervals; and inspecting said third structure held by said one of the second plurality of data structures *(col. 7, lines 40-53)*.

10.   As to claim 4, Armstrong teaches retrieving said inspected third data structure from said

one of the second plurality of data structures: and executing a timed event encapsulated by said

third structure *(col. 5, lines 44-67).*

11.   As to claim 5, it is rejected for the same reasons as stated in the rejection of claims 1-3.

In addition, Armstrong teaches removing and inserting data structures *(col. 4, lines 25-38, col. 5,*

lines 1-4).

12.   As to claim 6, Armstrong teaches retrieving said inspected third data structure from said

different one of the second plurality of data structures; and executing a timed event encapsulated

by said third data structure *(col. 7, lines 25-54).*

13.   As to claim 7, Armstrong teaches wherein said first data structure is an array (timer

request array) *(see Abstract).*

14.   As to claim 8, Armstrong teaches wherein said second plurality of data structures are

linked lists *(col. 5, line 1).*

15.   As to claim 9, Armstrong teaches wherein said second plurality of data structure are

doubly-linked lists *(col. 5, line 1).*

16.   As to claim 12, Armstrong teaches a switching apparatus within a network *(col. 2, lines 54-65)*.

17.   As to claim 13, Armstrong teaches selecting the insertion point of said third structure with a hashing algorithm *(col. 4, lines 7-12)*.

18.   As to claims 14-15, they are rejected for the same reasons as stated in the rejection of claims 1 and 9.

19.   As to claims 16-20, they are rejected for the same reasons as stated in the rejection of claims 2-6.

20.   As to claims 23-28, they are rejected for the same reasons as stated in the rejection of claims 1-6.

21.   As to claim 29, it is rejected for the same reasons as stated in the rejection of claims 1 and 14. In addition, Armstrong teaches an operating system *(col. 1, lines 15-38)*. Again, Armstrong teaches an array pointing to another array and multi-dimensional arrays. Kernighan teaches that a multi-dimensional array is an array within an array.

22.   As to claims 30-32, they are rejected for the same reasons as stated in the rejection of claims 7-9.

23.   **Claims 10-11 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong, Jr. et al. (hereinafter Armstrong) (US 5,758,137) in view of Kernighan et al. (hereinafter Kernighan) ("The C Programming Language"), and further in view of Applicant's Admitted Prior Art in the Specification (hereinafter AAPA).**

24.   As to claims 10-11, Armstrong in view of Kernighan teaches wherein said third structure encapsulates data about a timed event. However, Armstrong in view of Kernighan fails to explicitly teach being a part of a computer simulation. However, AAPA teaches real-time computer systems and computer simulations for scheduling events for electronic devices *(page 1, lines 25-26 and page 2, lines 13-31)*. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of real-time computer systems and computer simulations for scheduling events for electronic devices to the existing system of Armstrong and Kernighan because it is extremely important for timely execution of events *(page 1, lines 23-26)*.

25.   As to claims 21-22, they are rejected for the same reasons as stated in the rejection of claims 11 and 10.

Response to Arguments

26.   Applicant's arguments have been fully considered but they are moot in view of the new

grounds of rejections.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The

examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kt
4/12/05

LEWIS A. BULLOCK, JR.
PRIMARY EXAMINER